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Petition for Resolution of Disputed Issues Pursuant to Condition (30) of the SBC/Ameritech Merger Order	)	

REPLY TESTIMONY OF

MICHAEL KALB, PH.D.

ON BEHALF OF

ASSOCIATION OF COMMUNICATIONS ENTERPRISES

AT&T COMMUNICATIONS OF ILLINOIS, INC.

CORECOMM ILLINOIS, INC.

FOCAL COMMUNICATIONS CORPORATION

MCLEODUSA TELECOMMUNICATIONS SERVICES, INC.

TCG CHICAGO, TCG ILLINOIS, TCG ST. LOUIS

TIME WARNER TELECOM OF ILLINOIS, LLC.

WORLDCOM, INC.

AND

XO ILLINOIS, INC.

August 2, 2001

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Michael Kalb. My business address is AT&T Corp., 295 N. Maple Avenue, Basking Ridge, New Jersey.

Q. ARE YOU THE SAME MICHAEL KALB THAT SUBMITTED DIRECT TESTIMONY?

A. Yes.

Q. FOR WHOM ARE YOU TESTIFYING?

A. Although I am employed by AT&T, I am also testifying on behalf of the Association of Competitive Telecommunications Enterprises, CoreComm Illinois, Inc., Focal Communications Corporation, McLeodUSA Telecommunications Services, Inc., Time Warner Telecom of Illinois, LLC., WorldCom, Inc., and XO Illinois, Inc.

Q. WHAT DO YOU ADDRESS?

A. I respond to the testimony of SBC/Ameritech and Illinois Commerce Commission ("Commission") Staff.

Q. WHAT POINTS DO YOU ADDRESS IN YOUR REPLY TESTIMONY?

A. I will first respond to the testimony of SBC witness Dysart on the experiences in Texas where the remedy plan proposed by Ameritech was developed. I will rebut the most egregious misstatements SBC/Ameritech witnesses Fioretti and Dr. Levy concerning the CLEC Plan. Finally, I will offer some comments in response to the testimony of Staff witnesses Dr. Patrick and Mr. McClerren. I will not respond to each and every point made by SBC/Ameritech and the Staff, since my

initial testimony and the initial and rebuttal pieces of my colleagues Dr. Jackson, Ms. Moore and Mr. Cox provide considerable responsive details.

I. RESPONSE TO THE TESTIMONY OF SBC/AMERITECH WITNESS DYSART

Q. DO YOU RECALL SBC/AMERITECH WITNESS DYSART FROM THE TEXAS 271 "COLLABORATIVE"?

A. In my attendances at the Texas PUC's "collaboratives" I never met Mr. Dysart because the competitive local exchange carriers ("CLECs") met separately with Texas PUC staff.

Q. DO YOU AGREE WITH MR. DYSART'S DISCUSSION OF THE TEXAS REMEDY PLAN INCORPORATING SUBSTANTIVE CLEC INPUT?

A. No. As I discussed in my initial testimony, the vast majority of the CLEC recommendations were not included in the Texas Plan. Furthermore, Mr. Dysart's assertions to the contrary, the Texas Remedy Plan was to a great extent formulated between former Texas Chair Woods and SWBT in private meetings, to which CLECs were not invited. Finally, the Texas Remedy Plan is a clear example of how SBC views "collaboration"; that is, only two parties need participate for the exercise to become "collaboration", one of which necessarily is SBC.

Q. DOES MR. DYSART'S ADVOCACY OF THE TEXAS PLAN HERE OFFER INSIGHT INTO THE EFFECTS OF SBC'S TAKEOVER OF AMERITECH?

A. Yes. This is a great example of how the Ameritech/SBC merger constrains competition. Here we have a Southwestern Bell Telephone Company ("SWBT") employee testifying in Ameritech Illinois territory for the ILEC. If things were working correctly, SWBT should be competing in the Ilinois local arena against the ILEC, not foisting its policies – such as the ineffective Texas Remedy Plan -- upon the ILEC.

II. RESPONSE TO THE TESTIMONY OF SBC/AMERITECH WITNESS FIORETTI

Q. DO YOU AGREE WITH MR. FIORETTI ASSERTION ON PAGE SIX OF HIS TESTIMONY THAT THE TEXAS PLAN REFLECTS "AGREEMENTS REACHED WITH CLECS IN COLLABORATIVES THROUGHOUT THE AMERITECH REGION"?

A. No. Ameritech has consistently ignored CLEC on improvements to the Texas Plan. I am unaware of any positive substantive CLEC-proposed change to the Texas Plan to which SBC/Ameritech "consents".

Q. IS THE TEXAS REMEDY PLAN A COMPROMISE REFLECTING THE INPUT OF CLECS, STATE COMMISSIONS AND THE FCC, AS MR. FIORETTI AND DR. LEVY ASSERT?

A. This assertion is disingenuous on a number of levels. First, the Texas Plan is not a "compromise" by any stretch of the imagination. I am unaware of any CLEC supporting the Texas Plan as a "compromise". Second, the Texas Remedy Plan ignores the input of commissions and their staffs in the Ameritech region. I am

unaware of any substantive input into the Texas Plan from any state commission or staff (or any consumer advocate, for that matter) in the Ameritech region. Yet, despite consistent opposition to many of the anti-competitive elements of the Texas Plan from the staffs and commissions in Illinois, Indiana,[1] Michigan and Wisconsin, Ameritech refuses to change the Plan in any noticeable way from what its parent company, SBC, obtained in Texas. Fourth, other than the misused version of the k-table contained in the Texas Plan,[2] substantive CLEC input has been roundly ignored in the formulation of the Texas Plan. Fifth, and finally, I have never heard of the FCC proposing any change to the remedy plans it has accepted in various 271 applications. Indeed, the only substantive FCC activity to which I am aware where a remedy plan was altered was in New York. As the Commission likely recalls, after Verizon was granted 271 long distance authority, its service quality markedly deteriorated to the point that over 35% of AT&T's new orders were lost or mishandled. In that instance the New York PUC ordered an increase in remedies from 36% of net revenue to 39% of net revenues. The FCC accepted this change.[3]

[1] In November, 2000 the Indiana Utility Regulatory Commission ("IURC") adopted 44 principles governing remedy plans. These principles are, in many regards, radically different than the Texas Plan. Despite these guiding principles, Ameritech Indiana refused to change the Texas import by one iota.

[2] *See, also,* Rebuttal Testimony of Dr. Jackson. I also discuss the evolution of the k-table in my initial testimony.

[3] Considerable time has elapsed since the Texas PUC accepted SBC's remedy plan. CLEC experiences – as well as changes in the regulatory environment, such as the *ASCENT* decision on advanced services and the New York PUC decision discussed above -- point to the need for a remedy plan that addresses today's regulatory and business environment.

Q. SHOULD ILLINOIS ADOPT ON A PERMANENT BASIS THE TEXAS PLAN AS MR. FIORETTI DESIRES BECAUSE SBC/AMERITECH OFFERED THE PLAN AS A "COMMITMENT" IN THEIR MERGER CASE?

A. Of course not. Illinois has had experience with the Texas Plan, as my colleague Ms. Moore discusses in her testimony. Thus, as Ms. Moore explains, Illinois sees the myriad problems with the Plan. Illinois should follow the lead of other states – such as Michigan and Wisconsin – that are crafting state-specific remedy plans applying to Ameritech, and not blindly rubberstamping the Texas Plan. Indeed, besides the CLEC Plan, which is tailored to service quality issues and problems in the Ameritech region, Staff witness Dr. Patrick also seeks a remedy plan unique to Illinois. Thus, no party other than Ameritech asserts that the Texas Plan should be adopted unchanged.

Q. DO YOU AGREE WITH MR. FIORETTI (TESTIMONY, P. 24) THAT THE CLEC PLAN IS "PUNITIVE"?

A. No. The CLEC Plan requires the payment of remedies when Ameritech does not perform adequately. Unlike the Texas Plan, which allows Ameritech to pay little or no remedies for bad service, the CLEC Plan properly incents Ameritech to improve its service. We can be assured that Ameritech will be much more incented to improve its wholesale service quality if the CLEC Plan is adopted than the ineffective Texas import.

More fundamentally, though, the CLEC Plan is certainly not punitive, since where Ameritech meets its performance measurements, it indeed will not have to pay remedies. Contrast this with the Texas Plan, where in many instances, as Ms. Moore discussed in her initial testimony, Ameritech will not have to pay any remedies where it provides poor service.

Ameritech is also misleading in describing the impact of the CLEC Plan in the case of Tier II. Mr. Fioretti states that a 5% criterion is used for this Tier, but this failure criterion must occur at the already lenient 5% rate for three consecutive months. This really amounts to a 0.0125% criterion. This is extremely lenient. Furthermore not all submeasures are in Tier II.

Q. DO YOU AGREE WITH MR. FIORETTI'S ASSERTION ON PAGE 27 OF HIS TESTIMONY THAT THE CLEC PLAN'S PER-MEASURE REMEDY APPROACH WOULD RESULT IN THE PAYMENT OF EXCESSIVE REMEDIES FOR A LIMITED NUMBER OF TRANSACTIONS?

A. No. Mr. Fioretti omits the most important fact under the so-called per occurrence approach of the Texas Plan: per occurrence remedies are not really calculated, otherwise the method would not potentially lead to remedies being paid on more than 100% of occurrences. The plan requires a truncation at 100%. This demonstrated the inconsistency of the method. Calculating the actual number of occurrences that are deemed in need of remedies is in fact an ill-defined problem and the method used by Ameritech is flawed on a number of scores. The improper method used by Ameritech rests on first obtaining the percent difference between

the retail performance and the wholesale performance as expressed in terms of the modified z score and a z score corresponding to a fixed critical value of somewhat more than 95% confidence. This percent difference is the used as a multiplier on the total number of transactions for the submeasure to obtain the so-call number of affected transactions. Unfortunately, this calculated percent difference can easily be more than 100% and therefore would lead to more than 100% of the total number of occurrences being affected by the discrimination. This is a patently absurd result that the Texas plan absolves by truncating the number payable transactions to the total number whenever the calculation exceeds the total number of transaction. The method of counting occurrences in the Texas plan is therefore inconsistent and should be rejected as a method of somehow quantifying the severity of the failure for the purpose of remedies. Furthermore, if the submeasure passed the test, then no remedies are due. This represents a further inconsistency because surely there will be occurrences even in a passed submeasure that should attach remedies, but of course they would not under this plan.

The per-measure approach is also preferable, as I discussed in my initial testimony, where competition is relatively limited for a particular offering, such as a new service. The per-occurrence approach to setting remedies, on the other hand, would perversely allow Ameritech to offer exceptionally poor service for incipient offerings and crush competition in emerging areas.

Q. DOES THE CLEC PLAN "NOT PLACE ANY LIMIT ON REMEDIES" AS MR. FIORETTI CLAIMS?

A. No. Even Mr. Fioretti concedes that the CLEC Plan establishes a procedural cap on remedies. This procedural cap is only reached where Ameritech provides such poor wholesale service for an extended period of time that it reaches the "cap". Then, the Commission is empowered, after hearing from Ameritech, Staff and other interested parties, to decide if a higher cap is needed to incent Ameritech to improve its service quality. Under the CLEC Plan the Commission decides how to impose additional remedies to incent Ameritech to improve its wholesale services. Ameritech is evidently uncomfortable with the Commission having this authority.

Q. DO YOU AGREE WITH MR. FIORETTI THAT BILL CREDITS ARE A "SENSIBLE AND PRACTICAL" WAY FOR AMERITECH TO "PAY" REMEDIES?

A. No. The credit requirement is harmful to competitors, since it forces them to do additional business with Ameritech to get their credit. Obviously, CLECs in their striving to promote their competitive interest in the market are reluctant to give Ameritech any more business than is necessary, so the Commission should heed Staff witness Dr. Patrick, who opposes this portion of the Texas Plan, and reject the bill credit requirement.[4]

III. RESPONSE TO THE TESTIMONY OF SBC/AMERITECH WITNESS DR. LEVY.

Q. DO YOU AGREE WITH BOTH AMERITECH WITNESS DR. LEVY AND MR. FIORETTI THAT THE CLEC REMEDY PLAN IS SOMEHOW INCOMPLETE?

A. No. This contention is false. First, as is seen by the testimony presented by myself, Ms. Moore and Mr. Cox, the Joint CLEC Plan is a complete, self-executing plan. Second, the CLEC Plan is **proven** to work in practice, as remedies have been calculated using Ameritech's proxy program, as I discussed in my initial testimony. If the CLEC Remedy Plan were "incomplete" as Dr. levy asserts, how can remedies be calculated with specificity? Third, and most disturbing, is Dr. Levy's "hiatus of knowledge" on the statistical elements of the CLEC Plan.

In October, 2000, well before Ameritech's testimony were filed, I spoke and wrote at length with Dr. Chyhia Becker and Raymond Wolff, both of whom are consultants used by Ameritech on the remedy plan issue and gave extensive information on the Joint CLEC Remedy Plan, including the essential elements of the CLEC formula, such as the use of the modified z score on submeasure cells as a simplifying yet valid estimator without the need for complicated truncation, how to calculate its balancing critical value, the meaning of the materiality parameter (delta), its effects on the results, why a single delta represents an enormous improvement over a fixed critical value (as used in the Texas plan) for emerging markets, why one can specify the variational materiality (lambda) to unity without loss, etc.

[4] Direct Testimony of Dr. Melanie Patrick, p. 63.

Q. IS DR. LEVY AWARE OF THIS EXCHANGE OF INFORMATION?

A. Yes. I was present when Dr. Levy, to whom Dr. Becker and Mr. Wolff report, was cross-examined on this very subject on December 1, 2000 in hearings in the Wisconsin Remedy Plan proceeding, Public Service Commission of Wisconsin Docket No. 6720-TI-160. In response to questions from counsel for AT&T, Dr. Levy pointed out that Dr. Becker and Mr. Wolff both work closely with him on preparing his testimony.[5] Moreover, I offered detailed testimony in Wisconsin showing that virtually all of Ameritech's claims of missing information were in fact resolved in meetings between Dr. Becker, Mr. Wolff, and myself.[6] Thus, Ameritech's claims of "missing values for critical parameters" in the Joint CLEC Remedy Plan are beyond reasonable understanding. The Commission should ignore Ameritech's criticisms. They are simply not accurate, given the information Ameritech's personnel and consultants have in their possession for many months.

Q. DO YOU AGREE WITH DR. LEVY'S ANALYSIS OF RANDOM VARIATION?

[5] Public Service Commission of Wisconsin Docket No. 6720-TI-160, Tr. Vol V, pp. 495-496 (December 1, 2000).
[6] *Id.* at pp. 603-604.

A. No. It is significant that Dr. Levy's initial statistical focus is on the concept of random variation. However, what is clear from Dr. Levy's testimony is that the only random variation in which Ameritech has interest is random variation that harms them. Random variation which helps them either is not addressed or is downplayed in importance. . This is exemplified in the large component of Dr. Levy's testimony that deals with Type I error, while at the same time spending scant discussion on Type II error of the statistical tests.

Q. DO YOU AGREE WITH DR. LEVY'S ARGUMENTS SUPPORTING RANDOM VARIATION?

A. No. A remedy plan serves its purpose if it requires remedies whenever discrimination has occurred. Dr. Levy, however, wants the Commission to adopt forgiveness mechanisms that will result in Ameritech not paying remedies where discrimination has occurred, by its proposed use of statistical testing for benchmarks and the k-table exclusion. This implies that that there can be cases where discrimination has occurred that will not get remedied. Also, a large firm such as Ameritech can and often will discriminate against itself because it will give different quality of service to different customers depending on their size, location, and marketing strategy.

For example, a large business customer might have its own account representative, while a single-line residential customer will not have such a level of service. Dr. Levy is confusing the actual providing of parity service with the declaration produced by a statistical test. They are not the same. Parity service is

an underlying property of the process. The declaration of the test for parity is something that comes from looking at a finite collection of data. It is here and only here that random variation comes into play.

Q. DO YOU AGREE WITH DR. LEVY'S CONTENTION THAT THE CLECS INTENDED THAT RANDOM VARIATION BE IMPLEMENTED IN THE FORM OF THE K-TABLE EXCLUSION?

A. No. Clearly the CLECs did not intend that random variation be implemented solely in the form of the k-table. The most modern implementations use the concept of balancing, as I discussed in my initial testimony.

Q. DO YOU AGREE WITH DR. LEVY'S "TUTORIAL" ON THE STANDARD AND MODIFIED Z TESTS?

A. Not in all circumstances. First, Dr. Levy's lack of participation in the Texas 271 "collaborative" is exhibited in his analysis. Dr. Levy's reason for using the pooled statistics for proportions and rates is not the reason it was originally chosen in Texas. The pooled statistic exists because Texas PUC staff had noticed a problem when ILEC proportions were either zero or one and when ILEC rates were zero. In those cases the modified z score could not be computed. The pooled score can still almost always be computed. I have personal knowledge that this is true because Texas staff consulted me on this, albeit minor, issue. Dr. Levy's reasoning is off base.

Dr. Levy tries to support the use of the z test by making it appear that it is a well-known methodology, which it indeed is. However, the way Ameritech uses it,

with a fixed critical value, is inappropriate for the kind of data CLECs are collecting from Ameritech's operating support systems ("OSS"). In order to control important sources of statistical error as fully as possible in such observational studies, a fixed critical value cannot be used with the z test. The critical z value, which gauges the random variation, must be chosen in a manner consistent with the quantity of data available in the observation. The Ameritech method does not do this. It fixes the Type I error at an unrealistically low value of 5% at the expense of allowing the Type II error to vary without limits. This lowers the power of the test compared to the balancing approach. In effect the fixed 5% Type I error makes it **harder** to detect discrimination in the data where it actually exists. Note that this self-stated guideline of the Ameritech plan is impeded by the use of a fixed 5% Type I error.

In summary, the use of a fixed critical value test is appropriate for controlled experiments performed in a laboratory, where scientists can repeat the experiment as many times as necessary to control all statistical errors. Ameritech's OSS data, however, is collected in the real world, not in a laboratory; thus there are additional sources of error due to sampling. To control this error a critical value must be chosen that minimizes the total error. The CLEC proposed balancing methodology is the solution to minimizing the total error.

Q. DO YOU AGREE WITH DR. LEVY'S DISCUSSION ON PAGES 8-9 OF THE K TABLE EXCLUSION?

A. No. The k-table is only statistically valid if Ameritech were providing parity service on all submeasures to all CLECs, which is abundantly and clearly untrue, and in which case the k-table and remedy plans would not be needed anyway.

What is significant about Dr. Levy's explanation about the k-table is at each step of the process more and more liability for discrimination by Ameritech is removed. For example, using the k table exclusion, 8 submeasures are forgiven out of 100 to mitigate against a 5% Type I error. This is a blatant attempt to reduce liability by hiding behind a thin veneer of "statistical science."

Q. DO YOU AGREE WITH DR. LEVY'S RECOMMENDATION TO USE OF STATISTICAL TESTING ON BENCHMARKS?

A. The use of statistics on predefined benchmarks is entirely inappropriate, as I discussed in my initial testimony. The benchmark standards were designed with the underlying process fully in mind. This is another blatant attempt by Ameritech to reduce liability.

Q. ARE YOU AWARE OF KPMG SUPPORTING THE USE OF STATISTICAL TESTING ON BENCHMARKS?

A. Dr. Levy very misleadingly implies that, since KPMG Consulting uses a 95 percent confidence interval for statistical testing in the OSS Test, that this somehow extends to the use of statistical testing on benchmarks for calculating remedies. I am unaware of KPMG supporting Ameritech on this issue on remedy

plans, and indeed expect KPMG is similarly without knowledge of their alleged position on this issue.[7]

Q. DOES DR. LEVY ACCURATELY DISCUSS TYPE II ERROR ANALYSIS?

A. No. Dr. Levy appears to have confused this issue and has no good reason to reject the use of Type II error analysis. The CLEC Plan defines the appropriate level of materiality and balanced Type I with Type II errors to produce an appropriate critical value. The fixed critical value methodology proposed by Ameritech takes no account of materiality at all. As a result submeasures tests with small sample sizes have low power (do not fail appropriately often) and submeasures tests with large sample size have too much power (fail more often than appropriate). Although the choice of materiality must come from other than statistical considerations, any given choice can be analyzed statistically, which is what we did for a number of materiality values, finally settling on a value of 0.25. Even though one could envision a set of materiality values defined for each submeasure, a universal materiality for all submeasures will still be more accurate than results obtained from using a fixed critical value.

Q. DID AMERITECH PROVIDE ITS REMEDY CALCULATIONS TO YOU?

A. No. Unlike AT&T, which provided its remedy equation calculations, Ameritech did not provide its programs, nor did it provide the so-called proxy data in the format requested by AT&T, even though they agreed to do so. Because of the amount of data, I had to use all of time available time to present the Commission

[7] To the contrary, KPMG likely is familiar with the CLEC-proposed balancing methodology, which is incorporated in the Qwest remedy plan.

with the information on time, even though Ameritech did all in its power to impede that presentation by not providing the data they promised.

Q. DOES THE TEXAS REMEDY PLAN'S STATISTICAL METHODOLOGY REDUCE THE RISK THAT A LARGE DISPARITY GOES UNDETECTED FOR TYPE 2 ERRORS, AS DR. LEVY ARGUES?

A. No. Type II errors are enormous under the Ameritech methodology. Furthermore, the total error (both Type I and Type II) is shown to be smallest under the balancing methodology contained in the CLEC Remedy Plan.

The choice of a 95% confidence as a supposed way to limit the error rate discussed by Dr. Levy is arbitrary and does not even allow for an accurate determination for all sample sizes.

Indeed, Ameritech's statistical methodology has the perverse effect of **increasing** the Type 2 error rate. Using Dr. Levy's coin flip example, while it is true the CLEC balancing proposal would raise Type I error to 16%, it would lower Type II error to 16% as well. In the Ameritech proposal, however, it can be shown that although the Type I error is 5%, the Type II error is at least 27%! This demonstrates the inherent unfairness of the Ameritech method. Furthermore, if there were less than 50 flips, Ameritech would still insist on their 5% confidence level; the Type II error would jump quickly to an amount approaching 100% in the Ameritech scheme. Under balancing, no matter what the number of flips

neither the Type I nor Type II error would go above 50% and would always be equal.

Q. PLEASE COMMENTS ON DR. LEVY CLAIMS THAT UNDER THE CLEC PLAN REMEDIES ARE PAID EVEN IF SERVICE IS IN PARITY.

A. Dr. Levy complains that Ameritech is required to pay substantially more than the Texas proposal in remedies to CLECs under the Join CLEC proposal where Ameritech misses 8.6% of its performance measurement tests that are subject to Tier I remedies, and 23.9% on Tier II remedies. (Dr. Levy testimony, pp. 41-44). Dr. Levy speculates that the CLEC remedies are too high in this instance, since, in his opinion, Ameritech is providing parity of service.

This contention shows the difference in philosophy between Ameritech, attempting to maintain its monopoly power and a competitive provider, attempted to get a toe-hold in the local market. To the monopolist, evidently, failing its performance measures 8.6% of the time somehow constitutes parity. Since when is 91.4% compliance parity? The total of $26.6 million for the month is for performance that is out of parity, not in parity. Moreover, the measures failed may not be "most" of them, but they very well could be business affecting, such as measures for installation and repair.

Another defect with Dr. Levy's contention is how one defines "parity". Under the CLEC Plan, we assign failure more often to Ameritech then it is assigning to itself. However, the Ameritech plan assigns parity on many more occasions when

in fact it is discriminating. This, of course, is not a surprise, given the myriad layers of forgiveness built into the Texas Plan. The balancing method minimizes the total Type I and Type II error probabilities, while the Ameritech method simply fixes its Type I error probability at 5% without any regard to the size of the Type II error probabilities. Furthermore, a 5% Type I error is not conventional in these kinds of observational studies. Note that table 2 of Dr. Levy's testimony does not show the corresponding Type II error probabilities. Ameritech would be embarrassed to show these numbers so we did (see the table in the portion of my rebuttal testimony responding to Staff, *infra.*).

Q. IS DR. LEVY CORRECT THAT UNDER THE CLEC PLAN REMEDIES OF $25,000 WILL BE PAID FOR ONE INSTANCE OF BAD SERVICE?

A. This argument that the CLEC Plan would lead to a large $25,000 payment for only one installation is flawed because it is not for a single installation that we are testing parity. We are testing for parity of the process that produces the installations. This comes exactly to the point I have made here and in my initial testimony. With only one data point we cannot reasonably require a 95% confidence in the declaration. If we did, then the probability of getting it wrong and declaring parity, even though the process is discriminatory turns out to also be about 95%. So Ameritech is happy to have us allow them 5% error in declarations, but 95% error in declarations of discrimination. This is patently unfair and inaccurate. The best you can do is to split the difference, as happens in the balancing method. For this 1-sample point case, the Type I and Type II errors are the same at about 50%. Ameritech's methodology guarantees that it will be

able to discriminate almost at will, especially with small sample sizes when the CLEC businesses are most vulnerable; this is not the way to design an incentive plan that will have any hope of succeeding in opening the tightly locked doors of competition clamped with the bolts of Ameritech's monopoly power.

Q. DO YOU AGREE WITH DR. LEVY'S COMPLAINT THAT, IN ONE PARTICULAR INSTANCE, THE CLEC PLAN CALLS FOR SMALLER REMEDIES THAN THE AMERITECH PROPOSAL?

A. I find Dr. Levy's analysis on the instance when the CLEC Plan would call for smaller remedies than the Texas proposal to be quite helpful. (Dr. Levy Testimony, pp. 49-51). First, Dr. Levy rebuts the (absurd) claim made by his colleague Mr. Fioretti that the CLEC Plan exists as a way to create a revenue stream. If that were the purpose of the CLEC Plan, it would not provide instances where it calls for smaller remedies than the Texas Plan.

Second, the example provided by Dr. Levy illustrates the fundamental fairness of the CLEC Plan. Under the CLEC Plan, remedies are not due in the example proffered by Dr. Levy simply because the threshold of materiality has not been reached. Ameritech has frequently argued that differences in retail and wholesale performance can be very small, especially with large sample size, and they would still have to pay remedies. Here we have an excellent example of how the CLEC plan is fair in its treatment to all parties. Large sample sizes imply large confidence in the test declaration. Therefore, the CLEC Plan allows for even smaller Type I and Type II errors than Ameritech does. It only makes sense that if

the data can provide a greater confidence in the result, then we should take advantage.[8]

IV. RESPONSE TO THE TESTIMONY OF STAFF

Q. DO YOU HAVE GENERAL OBSERVATIONS TO MAKE REGARDING MR. MCLARREN'S AND DR. PATRICK'S PROPOSED REMEDY PLAN?

A. Yes. Both Mr. McClerren's and Dr. Patrick's thoughtful, well-written testimonies provide excellent detail on the myriad problems with the Texas Plan. I agree with virtually everything Staff says on this topic, including their recommendation for the following improvements to the Texas Plan: (1) eliminate the k table exclusion; (2) no statistical testing on benchmarks; (3) no prioritization of performance measurements for purposes of calculating remedies; (4) tripling of remedy amounts; (5) adoption of parity with a floor; (6) cash payments -- no bill credits; (7) all performance measurements are considered "high" priority; (8) extending the remedy plan beyond the five year time limit of Condition 30 in the SBC/Ameritech merger order; and (9) no absolute cap on remedies -- a procedural cap is recommended.

Q. DOES ACCEPTANCE OF A FIXED CRITICAL VALUE, SUCH AS IS CONTAINED IN THE AMERITECH AND STAFF PROPOSALS, CONTROL TYPE II ERROR?

[8] Dr. Levy is inconsistent here with the meaning of the concept of critical value. On the one hand he says that the measure is clearly out of parity and then he turns around to state that the balancing critical value would cause failure once in a billion times if the measure were in parity. These two statements have absolutely nothing to do with each other – the submeasure was declared in parity by the balancing method because there was enough data to do so. Ameritech declared it out of parity because its methodology is too crude to distinguish what real confidence we have in the data for this many sample points.

A. No it does not, as I explained earlier. Dr. Patrick properly notes that in performing research tests (controlled experiments), the experiment is designed to keep Type I and Type II within the design bounds. Indeed, Dr. Patrick properly states that Type I and Type II errors are equally important. However, acceptance of the use of a fixed critical value, such as in the Ameritech plan, does nothing to control Type II error, the kind that hurts the CLECs.

Dr. Patrick properly notes that control of Type II error is usually accomplished, in the controlled experiment context, by increasing sample size. However, since our data come from the result of observational studies rather than controlled experiments, we can not adjust sample size to the needs of the experiment. The only fair way to accommodate this lack of control is to balance Type I and Type II errors. In so doing the overall error will be minimized.

Q. DO YOU AGREE WITH DR. PATRICK'S ANALYSIS OF THE 5% ALPHA?

A. Dr. Patrick does not justify her assumption of a 5% alpha. The balancing methodology used in the CLEC Plan suggests that the proper alpha to use depends on sample size. This makes sense because for smaller sample sizes (i.e., less data), there is no justification for a 5% alpha (95% confidence). The price we pay for this unjustified confidence with small samples is a large beta (Type II error) and a low power of the test. Confidence is to Type I error as power is to Type II error. Dr. Patrick does not discuss power, which is defined as the probability that the test will reject the null hypothesis (parity) when there is actually discrimination.

This probability must be as high as possible in order for the test to be fair and reasonable. For a forced 95% confidence and a reasonable alternative hypothesis, the power of the test will easily be below 50%. This means that there is less than a 50/50 chance that the test will reject the null hypothesis (parity) when in fact there is discrimination. This is a very poor test, which is exemplified in the higher failure rates that the CLEC balancing methodology (a fairer test) demonstrated in the proxy data.

The "plain vanilla" methodology – of which the 5% alpha is a significant part -- is not useful to analyze the data that comes out of these observational testing methodologies. The statistical analysis should be modified so it properly accounts for the reduced confidence that ensues from smaller sample sizes. In fact we should also modify the method for large sample sizes. For in this case the "plain vanilla" fixed sample size methodology overly penalizes Ameritech. When sample sizes are large, Ameritech will be subject to failures that are statistically significant, but may not be materially significant. Again the balancing methodology used in the CLEC Plan properly accommodates this situation by calculating a critical value for large sample size that make the hypothesis test more lenient, thus preserving materiality in a reasonable and fair manner.

Q. DO YOU HAVE ANY RESPONSE TO DR. PATRICK'S DISCUSSION OF THE CRITICAL VALUUES APPLIED IN THE TEXAS REMEDY PLAN?

A. The table of critical values clearly puts the confidence higher than the 95% value advertised by Ameritech. Dr. Patrick states that the issue is one of additional

complexity. It is also one of accuracy. Furthermore a critical value of more than 1.645 will save Ameritech millions of dollars annually in remedy payments.

Q. DO YOU HAVE ANY RESPONSE TO DR. PATRICK'S CRITICISM OF THE STATISTICAL METHODOLOGY IN THE CLEC REMEDY PLAN?

A. I explained the CLEC Plan's statistical methodology in my first testimony, which they did not have access to before her testimony was filed. I do wish to respond to a few of Dr. Patrick's points, however.

Contrary to what Dr. Patrick states, the balancing critical value does not depend in any way on the value of the z-score. The balancing critical value has virtually no dependence on performance. It depends strongly on the sample sizes and materiality of difference in wholesale/retail performance.

This viewpoint of the CLEC Proposal leads Staff to believe that the standard hypothesis testing methodology is appropriate for OSS performance assessment, which are observational studies. They are not. Since we cannot control sample size we can not be expected to control Type II error unless we link Type II error to Type I error through a balancing regime. This is the fairest way of doing this kind of test and indeed keeps total (Type I plus Type II) error probability due to random variation to a minimum.

Moreover, lack of publication should not be and has never been a criterion for accepting or rejecting such a methodology. We could point to many aspects of

both plans that would technically require peer-review. Therefore, this is an unnecessary requirement on the use of the balancing methodology.

Q. DO YOU AGREE WITH AMERITECH'S AND STAFF'S RELIANCE ON THE FIXED CRITICAL VALUE?

A. No. The fixed critical value methodology, in contrast to the balancing method, not only also leaves open the potential for overly large Type I and Type II errors individually, the probability of enormous total Type I and Type II errors is larger in the fixed critical value approach than it is in the balancing approach. In the fixed approach advocated by Ameritech the Type I error is supposedly fixed at 5% (In fact it is more like 4% under their plan.). The Type II error is completely uncontrolled and will always be higher, often much higher, then the Type II error of the balancing approach. If we are worrying about potentially high error probabilities, our worry should be directed to the high Type II error probability of the fixed critical value methodology not the high probability of the balancing approach, which always and fairly assures that Type I and Type II error probabilities are equal whether they are large or small. Consider the following table that shows for an alternative hypothesis with a shifted mean of 0.25, the probabilities of Type I and Type II errors as a function of sample size for a fixed 5% scheme and the balancing method.[9] It is as a function of sample size that there is the greatest variation in error probabilities. (The use of a different shift value or

[9] We have used the (provable) fact that Ameritech processes lead to an underlying standard normal distribution of the modified z score under the null hypothesis of parity. As an alternative hypothesis, we have assumed a univariate normal distribution of the modified z score. However, it is shifted toward worse performance by 0.25 standard deviation (the value of delta). Univariate normality is a very good assumption for a shift of this magnitude. Nevertheless, our conclusions would remain true over a very large range of reasonable alternative hypothesis distributions of the modified z-score.

different fixed critical value will not change the character of the table or our conclusions.).

Sample Size		Type I Error Probability		Type II Error Probability	
		Fixed CV (1.645)	Balancing CV	Fixed CV (1.645)	Balancing CV
Low	10	5.0%	34.6%	80.4%	34.6%
Medium	50	5.0%	18.8%	45.1%	18.8%
	100	5.0%	10.6%	19.6%	10.6$
Large	300	5.0%	1.5%	0.4%	1.5%

Note first that for the fixed critical value Type I error probability never changes as a function of sample size (from 5%) by construction. However, note the value of the uncontrolled Type II error probability for the fixed critical value scheme. It is enormous (80.4% of the time discrimination will not be detected when it is there.) for low sample size and, going down the column, does not become comparable to the Type I error probability (5%) until sample size becomes well over 100 data points. For the smallest sample sizes (not shown) the Type II error probability will approach 100% in the fixed critical value scheme. On the other hand, at low sample size the balancing method gives a moderate Type I and Type II error probability (about 35% for each and will never greater than 50% for any sample size). Now, as sample size gets large all the error probabilities get small for all the error probabilities (as they should) except the Type I error probability of the fixed

critical value scheme. It of course remains at 5%. This is unfair to Ameritech because the large sample sizes can actually support a lower Type I error (higher confidence than 95%). Balancing produces very reasonable error probabilities at the highest sample size shown (1.5%), and these error probabilities will continue to decrease monotonically with increasing sample size. I emphasize that when sample size gets large, all error probabilities get comparably small, except the fixed by construction value (5%) of the Ameritech plan. Finally, note in the table that under balancing, no matter what the sample size, the total of the Type I and Type II error probabilities is always smaller than the total of the probabilities under the fixed critical value scheme. This can be proved as a theorem.

Moreover, contrary to what Dr. Patrick states, the balancing method equates the probabilities of Type I and Type II errors, not any notion of the actual error of a given observation itself. To illustrate consider for example, flipping a coin; the probability of heads as an outcome is p, while the probability of tails is 1-p. When we actually flip the coin a definite outcome occurs. For that flip, if heads occurred the probability becomes 1 for heads and 0 for tails. If tails occurred in the flip, the opposite would be true. There is no error of logic because the new probabilities are conditioned on the outcome of the flip, just as in CLEC methodology. Furthermore, it is perfectly legitimate to discuss the fairness of the coin and say that the coin will be fair if the probability of the heads outcome is equal to that of the tails outcome (i.e., p = 1-p = 50%). This is similar to what balancing requires.

Q. HAS THE BALANCING METHODOLOGY BEEN ADOPTED IN OTHER STATES?

A. Yes. Qwest in its 14-state region proposes a CLEC-similar assessment methodology. This was the result of collaborative effects in the Regional Oversight Committee, and not the result of private meetings to which CLECs were excluded. Staff should also review the Interim Decision in California, where a discussion of the balancing methodology is adopted. Finally, Bell South is proposing the use of balancing in all states of its footprint.

Q. DO YOU AGREE WITH DR. PATRICK'S DESCRIPTION OF THE "HESITATION" STEP?

A. No. The more lenient threshold for Tier II derives from the larger potential penalties that would ensue on Ameritech's failures. Staff should review the proxy results produced by the CLEC plan in order to see the effect of this "hesitation."

Q. DO YOU HAVE ANY RESPONSE TO DR. PATRICK'S ANALYSIS OF THE CRITICAL VALUE FOR THE K TABLE?

A. I agree that the critical value in the k-table is incorrect. However, it should not be 1.645 (95% confidence). Dr. Patrick assumes that this is a correct value. It is not. A fixed value corresponding to 1.04 (85% confidence) is more appropriate and accurate for this kind of observational testing if and only if a balancing methodology is not used.

Q. IF THE COMMISSION OPTS TO REJECT THE JOINT CLEC REMEDY PLAN, WHAT REMEDY PLAN SHOULD THEY ADOPT?

A. Obviously, I urge the Commission to adopt the fair, balanced CLEC Remedy Plan, since it does the most, of any proposal in this proceeding, to incent Ameritech to provide adequate wholesale services to CLECs. If it decides to not use the CLEC Plan, however, I recommend that the Commission adopt the Staff proposal, but supplemented with the balancing regime from the Joint CLEC Plan, which does a far better job in preventing discrimination than the clearly ineffective Texas Plan.

Q. DOES THAT CONCLUDE YOUR REPLY TESTIMONY?

A. Yes.